In the Specification

Please delete the Abstract of the Disclosure and replace with the following replacement Abstract of the Disclosure:

-- A method decodes a soft-input cost function for an error-correcting code. First, the code is selected and its FSTFG representation is constructed. The representation is simplified, and an encoding method consistent with the representation is selected. A set of message-update and belief-update rules are selected. Messages are initialized according to a soft-input cost function. An iterative decoding cycle is then begun. The first step updates the messages according to the pre-selected message-update rules. The second step determines a trial code word from the messages, the pre-selected message-update rules, and the encoding method. The third step replaces a tentative output code word of the decoding method with the trial code word if the trial code word has lower cost. The decoding cycle terminates if a termination condition is true, and outputs the tentative code word. --